

Notice of Allowability

Application No.

09/764,207

Examiner

Mary Wilczewski

Applicant(s)

LAY ET AL.

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on February 05, 2004.
2. ☒ The allowed claim(s) is/are 1,3,4 and 6-10.
3. ☒ The drawings filed on 19 January 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

M. Wilczewski
Primary Examiner
Tech Center 2800

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

This application is in condition for allowance except for the presence of claims 11-19 drawn to an invention non-elected without traverse. Accordingly, claims 11-19 have been cancelled.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: It is well known in the art to form an insulating layer on the sidewalls of a bump electrode to prevent an electrical short through the side surface of the electrode which occurs due to a conductive elements or balls in ACA/ACF thereby yielding a plurality of metal bumps having sidewalls covered with an insulating layer, see, for example, Kim, U.S. Patent 6,232,563, of record or Chun, U.S. Patent 5,923,080, newly cited. However, Chun teaches to form the insulating layer on the entire outer surface of the electrode (see Figure 3; column 2, lines 59-61; and column 2, line 66, bridging column 3 to line 8). Kim et al. teach to form the insulating layer only on the side surfaces of each bump electrode (see column 3, lines 55-67; column 4, lines 47-62; column 4, line 66, bridging column 5 to line 32; and figures 4, 5B-5D and 6A-6B). Hence the structures of both Kim and

Chun comprise a plurality of metal bumps in which adjacent sidewalls of the bumps are covered with an insulating layer. None of the prior art of record teaches or suggests a structure comprising a plurality of metal bumps wherein the sidewall of a first bump is covered with an insulating layer but the adjacent sidewall of a second bump is not covered by an insulating layer, as presently claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to M. Wilczewski at telephone number (571) 272-1849.



M. Wilczewski
Primary Examiner
Tech Center 2800